**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (original) A method of preparing a material of a desired structure composed of nanoparticles, the method comprising

**(i)** providing a substrate having pores or channels functionalized with an agent capable of binding nanoparticles, said pores or channels having a desired shape and a cross-sectional size from about several nanometers to about several hundreds of microns; and

**(ii)** passing through said substrate a colloid solution comprising nanoparticles and a solvent, so as to bind and form more than one layer of nanoparticles in the pores or channels, where the nanoparticles spontaneously coalesce to form a coherent material;

thereby obtaining in said pores or channels a material composed of nanoparticles, said material having a substantially hollow structure that follows the shape of said pores or channels in the substrate.

2. (original) The method of claim 1 carried out with a substrate having pores, further comprising the step of separating the material obtained in step (ii) from the porous

substrate to obtain a material having a substantially hollow structure and composed of nanoparticles.

3. (original) The method of claim 1, wherein the cross-sectional size of said nanopores or channels is of about 20 nm to about 100 µm.

4. (currently amended) The method of ~~anyone of claims~~ claim 1 ~~to 3~~ for the preparation of metal, metal oxide, semiconductor, polymer, or composite materials.

5. (original) The method of claim 4, wherein said material is metal-based material.

6. (original) The method of claim 5 for preparing a metal-based material composed of nanoparticles and having a substantially tubular structure, the method comprising:

(a) providing a substrate having pores or channels functionalized with an agent capable of binding metal nanoparticles, said pores or channels having a cross-sectional size of from several nanometers to about 100 microns;

(b) passing through said substrate a colloid solution comprising nanoparticles of one or more metal source and a solvent, so as to bind and form more than one layer of metal nanoparticles in the pores or channels, where the nanoparticles spontaneously coalesce to form coherent metallic-based material; and

(c) optionally, in the case of a porous substrate, separating the metal-based material from the porous substrate to obtain a conductive metal-based material

composed of nanoparticles and having a substantially hollow structure.

7. (currently amended) The method of claim 1 ~~or 6~~ wherein said substrate is made of a material selected from ceramics, polycarbonate, polymeric material, metal, semiconductor and oxides.

8. (original) The method of claim 7 wherein said substrate is made of a material selected from alumina and polycarbonate.

9. (original) The method of claim 6 wherein said substrate is made of alumina and the pores are functionalized with bi-functional molecules having one group capable of binding to alumina and another group capable of binding metal nanoparticles.

10. (original) The method of claim 6 wherein said metal is selected from gold, silver, palladium and mixtures of such metals.

11. (original) The method of claim 1 wherein said nanoparticles are stabilized by an organic stabilizer.

12. (original) The method of claim 11, wherein said organic stabilizer is a citrate salt.

13. (original) The method of claim 12, wherein said citrate is tri-sodium citrate dihydrate.

14. (original) The method of claim 9 wherein said material is separated from the substrate by dissolution in a base solution.

15. (original) The method of claim 9 wherein said material is separated from the substrate by dissolution in an acid solution.

16. (original) The method of claim 1 wherein said colloid solution is passed in an amount sufficient to form coherent material.

17. (original) The method of Claim 6, wherein said material is in the form of nanotubes and comprising gold, silver or mixtures of gold or silver with palladium, where each nanotube is about 200 nm in diameter and composed of continuous, multi-layered nanoparticle arrays consisting of nanoparticles of about 10-20 nm diameter.

18. (original) The method of Claim 1, further comprising a deposition step with a metal, so as to form substantially hollow structures coated by said metal on the surface of said structures.

19. (original) The method of Claim 6, further comprising after step (b) and before the optional step (c), a deposition step with an additional metal, so as to form metal structures coated by said additional metal on the surface of said structures.

20. (original) A method of preparing gold nanotubes, the method comprising

(a1) providing a substrate having nanopores functionalized with an agent capable of binding gold nanoparticles, said nanopores penetrating from one side of the substrate to the other side and having a diameter of about 20 nm to about 500 nm;

(a2) passing through said substrate a colloid solution comprising stabilized gold nanoparticles and water, so as to bind and form in the nanopores more than one layer of gold nanoparticles, where the nanoparticles spontaneously coalesce to form coherent nanotubes comprising gold; and optionally

(a3) separating the gold nanotubes from the substrate.

21. (original) The method of Claim 20, further comprising a metal deposition step after step (a2) and before step (a3), so as to form gold nanotubes coated by said metal on the surface of said nanotubes.

22. (original) The method of Claim 21, where said metal deposition step is carried out for depositing a layer of copper.

23. (original) The method of Claim 20, wherein said metal deposition is carried out by electroless deposition or electrodeposition.

24. (original) An electrically conductive material having a substantially hollow structure and composed of continuous, multi-layered nanoparticle arrays, said nanoparticles having a diameter of about 10 nm or higher.

25. (original) Material having a substantially hollow structure, obtainable by a method comprising

(i) providing a substrate having pores or channels functionalized with an agent capable of binding nanoparticles, said pores or channels having a desired shape and a cross-sectional size from about several nanometers to about several hundreds of microns; and

(ii) passing through said substrate a colloid solution comprising nanoparticles and a solvent, so as to bind and form more than one layer of nanoparticles in the pores or channels, where the nanoparticles spontaneously coalesce to form a coherent material; thereby obtaining in said pores or channels a material composed of nanoparticles, said material having a substantially hollow structure that follows the shape of said pores or channels in the substrate.

26. (original) Material according to claim 25, being metal-based material and obtainable by a method comprising: providing a substrate having pores or channels functionalized with an agent capable of binding metal nanoparticles, said pores or channels having a cross-sectional size of from several nanometers to about 100 microns; passing through said substrate a colloid solution comprising nanoparticles of one or more metal source and a solvent, so as to bind and form more than one layer of metal nanoparticles in the pores or channels, where the nanoparticles spontaneously coalesce to form coherent metallic-based material; and optionally, in the case of a porous substrate, separating the metal-based material from the porous substrate to obtain a conductive metal-based material composed of nanoparticles and having a substantially hollow structure.

27. (original) Metal-based material according to claim 26 in the form of gold nanotubes, said gold nanotubes having a diameter of about 200 nm and comprising gold nanoparticles assembled together in the form of hollow nanotubes, where the nanoparticles diameter is between about 10 to about 20 nm.

28. (original) A filter comprising a material obtainable by the method of claim 1.

29. (original) An optical sensor comprising a structure formed by a material obtainable by the method of claim 1, the structure having a predetermined absorption spectrum defined by the absorption spectrum of said nanoparticles.

30. (original) A method of separating a specific material from a solution containing said specific material, the method comprising passing said solution through the filter of Claim 28.

31. (original) A catalyst or electrocatalyst comprising nanotubes having a diameter of about 200 nm and consisting of nanoparticles assembled together in the form of hollow nanotubes, where the nanoparticle diameter is between about 10 to about 20 nm.

32. (original) A method according to claim 1 for preparing a material composed of particles having a substantially tubular structure, the method comprising

(i) providing a substrate having nanopores functionalized with an agent capable of binding nanoparticles, said

nanopores penetrating from one side of the substrate to the other side and having a diameter of about several nanometers to about 100 microns; and

(ii) passing through said substrate a colloid solution comprising nanoparticles and a solvent, so as to form more than one layer of nanoparticles in the nanopores, where the bound nanoparticles spontaneously coalesce to form a coherent tubular material.

33. (original) The method of claim 32, further comprising the step of separating the nanotubes from the porous substrate to obtain a material having a substantially tubular structure.